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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,311	03/21/2001	Jae-Yoel Kim	678-638 (P9799)	4839

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EXAMINER	
DOOLEY, MATTHEW C	

ART UNIT	PAPER NUMBER
2133	8

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/814,311	KIM ET AL.	
	Examiner	Art Unit	
	Matthew C. Dooley	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5,7* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

2. Page 9: lines 13-14 cite the puncturing of three bold underlined columns of each fifth codeword. However, none of the tables illustrate a fifth codeword. Appropriate correction is required.

3. Page 14: line 1 cites the removal of the repeater of figure 6, however the repeater has not been removed from figure 6. Appropriate correction is required.

4. Page 15: lines 27-28 refer to an encoder 600. No such encoder is present in figure 6. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (APA) in view of Molnar et al., U.S. 5,691,922, and Razoumov et al., U.S. 6,614,850.

As per claim 1:

The Applicant discloses that it is known in the art to utilize an (8,3) encoding system, however fails to teach to puncturing unnecessary bits of said code to realize a (r,k) simplex code wherein ($r = 2^k - 1$). (Fig.1). Molnar teaches to an encoding method

that encodes input information and then punctures unnecessary symbols (Fig.4b,4c). It would have been obvious for one of ordinary skill in the art to utilize the encoding method of Molnar in conjunction with the encoding system in figure 1 of the APA because the introduction of a puncturing circuit in the encoder allows for unnecessary bits in the (8,3) codeword to be punctured, thus allowing more data to be sent over an equal sized channel. However, this combination that does include the repetition of the code symbols (APA: pg.4: 16), fails to address the problem that punctured codes may exceed the original code length N. Razoumov teaches to a puncturing system that punctures code symbols after repetition for the case when the number of code symbols does not match the data frame (Col.7: 39-46). It would have been obvious for one of ordinary skill in the art to make use of the puncturing method disclosed by Razoumov in view of the aforementioned combination of the APA and Molnar because Razoumov allows for a technique of rate matching that would allow for standardized data frames to be transmitted by the system of the APA and Molnar, while still allowing for the maximized bandwidth usage disclosed above.

As per claim 2:

Razoumov teaches to uniform distribution of the punctured symbols across the repeated code symbols (Fig.3a).

As per claim 3:

Razoumov teaches to puncturing symbols in a specified frame (Col.10: 21-31).

As per claim 4:

Claim 4 is the corresponding apparatus claim to rejected claim 1. As such, analogous reasoning to that used above in the rejection of claim 1 is further applied in the rejection of claim 4.

As per claim 5:

Claim 5 is the corresponding apparatus claim to rejected claim 2. As such, analogous reasoning to that used above in the rejection of claim 2 is further applied in the rejection of claim 5.

As per claim 6:

Claim 6 is the corresponding apparatus claim to rejected claim 3. As such, analogous reasoning to that used above in the rejection of claim 3 is further applied in the rejection of claim 6.

As per claim 7:

The Applicant discloses that it is known in the art to utilize an (8,3) encoding system, however fails to teach to puncturing unnecessary bits of said code to realize a (7,3) simplex code. Molnar teaches to an encoding method that encodes input information and then punctures unnecessary symbols (Fig.4b,4c). It would have been obvious for one of ordinary skill in the art to utilize the encoding method of Molnar in conjunction with the encoding system in figure 1 of the APA because the introduction of a puncturing circuit in the encoder allows for unnecessary bits in the (8,3) codeword to be punctured, thus allowing more data to be sent over an equal sized channel. However, this combination that does include the repetition of the code symbols (APA: pg.4: 16), fails to address the problem that punctured codes may exceed the original code length N.

Razoumov teaches to a puncturing system that punctures code symbols after repetition for the case when the number of code symbols does not match the data frame (Col.7: 39-46). It would have been obvious for one of ordinary skill in the art to make use of the puncturing method disclosed by Razoumov in view of the aforementioned combination of the APA and Molnar because Razoumov allows for a technique of rate matching that would allow for standardized data frames to be transmitted by the system of the APA and Molnar, while still allowing for the maximized bandwidth usage disclosed above.

As per claim 8:

Razoumov teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.7: 39-46). Therefore, for the case where there total repeated codes divided by the encoded information equals one, the system of Razoumov punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 6 bits.

As per claim 9:

Razoumov teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.7: 39-46). Therefore, for the case where there total repeated codes divided by the encoded information equals two, the system of Razoumov punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 5 bits.

As per claim 10:

Razoumov teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.7: 39-46). Therefore, for the

case where there total repeated codes divided by the encoded information equals three, the system of Razoumov punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 4 bits. Moreover, the methods of Razoumov include puncturing specific symbols in a specified frame (Col.10: 21-31).

As per claim 11:

Razoumov teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.7: 39-46). Therefore, for the case where there total repeated codes divided by the encoded information equals four, the system of Razoumov punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 3 bits. Moreover, the methods of Razoumov include puncturing specific symbols in a specified frame (Col.10: 21-31).

As per claim 12:

Razoumov teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.7: 39-46). Therefore, for the case where there total repeated codes divided by the encoded information equals five, the system of Razoumov punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 2 bits.

As per claim 13:

Razoumov teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.7: 39-46). Therefore, for the case where there total repeated codes divided by the encoded information equals six, the

system of Razoumov punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 1 bit.

As per claim 14:

Razoumov teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.7: 39-46). Therefore, for the case where there total repeated codes divided by the encoded information equals three, the system of Razoumov punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 4 bits. Moreover, the methods of Razoumov include puncturing specific symbols of repeated code symbols (Fig.3b; Col.8: 40-44).

As per claim 15:

Razoumov teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.7: 39-46). Therefore, for the case where there total repeated codes divided by the encoded information equals four, the system of Razoumov punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 3 bits. Moreover, the methods of Razoumov include puncturing specific symbols of repeated code symbols (Fig3b; Col.8: 40-44).

Priority

7. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.	Lou et al.	U.S. 5,657,325: Fig.1a
b.	Kim	U.S. 6,170,076: Fig.8
c.	Li	U.S. 6,385,752: Fig.1
d.	Kim et al.	U.S. 6,460,159: Fig.1b
e.	Lee et al.	U.S. 6,621,873: Fig.5

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Dooley whose telephone number is (703) 306-5538. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Matt Dooley

Matthew Dooley
Examiner AU 2133
09/30/2003

ALBERT DECADY
SUPERVISORY PATENT EXAMINER